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10/541,181	06/30/2005	Shintaro Nakayama	OMOR-0011	6138

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EXAMINER	
BROOME, SAID A	

ART UNIT	PAPER NUMBER
2628	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/541,181	NAKAYAMA ET AL.	
	Examiner	Art Unit	
	Said Broome	2628	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *13 April 2007*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-3,5-19 and 21-42* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-3,5-19 and 21-42* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Response to Amendment

1. This office action is in response to an amendment filed 4/13/2007.

2. Claims 1-3, 5-13, 15-19, 21-29, 31 and 32 have been amended by the applicant.

3. Claims 14 and 30 are original.

4. Claims 4 and 20 have been cancelled.

5. Claims 33-42 have been added by the applicant.

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 1-3, 5-19 and 21-42 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. In regards to claims 1 and 17, the following claim language of section (a) "assembly structure information", section (b) "disassembling process definition information...being separate from said assembly structure information" and section (c) "disassembling process algorithm", as well as the phrase "partial animation" recited in claims 6-11, 15, 22-27 and 31, were not described in the originally filed specification, therefore claims 1-3, 5-19 and 21-42 are rejected under 35 U.S.C. 112 first paragraph. Applicant submits on page

12 2nd ¶ lines 2-5 of the remarks that three-dimensional CAD (or XVL) data containing an assembly structure of a product is common knowledge among those skilled in the art, and therefore supports the "assembly structure information" recited in claims 1 and 17 and does not raise the issue of new matter. However, the examiner respectfully disagrees since disclosure in an application that merely renders the later-claimed invention obvious is not sufficient to meet the written description requirements of 35 U.S.C 112, first paragraph. Lockwood, v. American Airlines, Inc. 41 U.S.P.Q.2d. 1961, 1966 (Fed. Cir. 1997).

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 2, 3, 5-9, 18, 19, 21-25, 36 and 41 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. In regards to claims 2, 3, 5-9, 18, 19, 21-25, 36 and 41, the definitions of the terms basic process and intermediate process are unclear. For examining purposes the term basic process has been interpreted to be a root or parent node of the tree structure, and an intermediate process has been interpreted to be a subpart or child node of the tree structure for claims 2 and 18. However, in regards to claims 3, 5-9, 19 and 21-25, the examiner's interpretation of the terms does not further enable the claims to be clearly understood and examined, therefore no prior art reference has been applied to the claims.

Claims 3 and 19 recite the limitation "said movement coordinate systems". There is insufficient antecedent basis for this limitation in the claim.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1, 2, 10-18 and 26-42 are rejected under 35 U.S.C. 102(b) as being anticipated by Hirata et al. (herein "Hirata", US Patent 6,157,902).

Regarding claims 1 and 17, Hirata describes a computer implemented method and system for automatically generating an animation of a disassembling or assembling process of a product, respectively in column 140 lines 65-66 ("*...a parts selection routine 100 for selecting parts to be disassembled is executed...*") and in column 13 lines 43-52 ("*...an assembly arrangement...downloaded onto a floppy disk at the three-dimensional CAD system...the floppy disk thus downloaded is loaded on the assembly route producing apparatus...*"). Hirata describes obtaining three-dimensional data of a product consisting of a plurality of parts including assembly structure information in column 21 lines 60-63. Hirata describes defining by user entries, disassembling process definition information in column 27 lines 45-48 ("*When a part to be disassembled is selected, in a manual route producing routine 400, a translation direction of the part to be disassembled and a movement thereof are inputted through a mouse operation...*"), and as illustrated in Figure 39, where a user defines the disassembly sequence of parts. Hirata illustrates generating a disassembling process algorithm or routine for generating an animation in column 27 lines 42-44 ("*FIG. 39 is a...routine for implementing characteristic structures shown in FIG...38(b)...*") and in column 27 lines 30-31 ("*...in FIG. 38(b)...part A is*

translated to a position..."), where it is described that the animation shown in Figure 38(b), is produced based on disassembly routine 400 that is a process defined by a user. Hirata illustrates that the disassembling process algorithm 400 shown in Figure 39 obtains input from a computer system, therefore all the disassembly data, including the disassembly process data, is stored in memory on the system, as described in column 13 lines 38-52 ("*...data representative of a subassembly comprising combinations of parts in which an assembly arrangement is performed on a unitary basis are downloaded onto a floppy disk at the three-dimensional CAD system...*"). Hirata illustrates generating an animation of the disassembling process according to the disassembling process algorithm in Figure 38(b), where the disassembling process is animated, as described in column 27 lines 42-44 ("*FIG. 39 is a...routine for implementing characteristic structures shown in FIG...38(b)...*") and in column 27 lines 30-31 ("*...in FIG. 38(b)...part A is translated to a position...*").

Regarding claims 2 and 18, Hirata describes disassembling process definition information that comprises a tree structure consisting of a node and leaves in column 24 lines 61-67 – column 25 lines 1-2 ("*When a desired name of the part on the screen of the part tree structure...is clicked...a schematic graphics image of the part clicked on the screen of the part tree structure is...displayed in an area associated with...the part in the...screen of the part tree structure.*") and in column 27 lines 45-48 ("*When a part to be disassembled is selected, in a manual route producing routine...the part...are inputted through a mouse operation...*"), where it is described that the defined disassembly includes selection of parts from a tree structure of nodes. Hirata also describes that the user defines a node and leaves so as to indicate a disassembling or assembling order in an animation with the node in column 16 lines 15-30 ("*On the screen of an*

automatic disassembly route producing set up menu, there are displayed...a column for designating the order of...a disassembly direction on a display screen...According to the example shown in FIG. 7, "VERTICAL"...are designated in the named order."), where the order in disassembling of the node is displayed to the user. Hirata illustrates allocation of parts in element 100 of Figure 68, which are displayed in the animation of the disassembling or assembling process illustrated in Figure 78 as 600_18 to the leaves displayed in Figure 71(b). Though the meaning of the terms basic process and intermediate process is unclear, for examining purposes the term basic process has been interpreted to be a root or parent node of the tree structure, and an intermediate process has been interpreted to be a subpart or child node of the tree structure. Therefore Hirata illustrates each node comprising a basic process and an intermediate process performed in the basic process in Figure 26, where the basic process or root node of the structural components, which is labeled as Part 1, is shown to comprise intermediate processes or structural assembly information of subparts or child nodes, as illustrated in Figure 26 as Parts 21, 31 and 41. Hirata also illustrates each leave consisting of a process parts group for grouping a plurality of parts or parts groups, and the parts or parts groups in Figure 29.

Regarding claims 10 and 26, Hirata describes modifying a disassembling process algorithm shown in Figure 5 with the modified algorithm shown in Figure 15, after a partial animation is generated, as described in column 18 lines 60-63 ("*FIG. 15 is a flowchart of a portion, which is to be added to the basic routine shown in FIG. 5, of routines for implementing characteristic structures of a second assembly route...*"), where it is described that after disassembly of a model is animated using a first disassembly routine shown in Figure 5, a second algorithm is then produced through modifying the algorithm with the routine shown in Figure 15,

to produce a new disassembly animation that indicates the possible collision of parts, as shown in Figures 14 (a) and (b).

Regarding claims 11 and 27, Hirata describes modifying a partial animation of each process by modifying a position of the parts for each animation in column 27 lines 45-53 ("*When a part to be disassembled is selected...a translation direction of the part to be disassembled and a movement thereof are inputted through a mouse operation...a collision check is performed...and the presence of occurrence of a collision is decided...when it is decided that a collision occurs...a collision occurs is displayed on the graphics screen.*"), where it is described that a portion of an animation of the model is altered through modification to positions of parts to show any collisions, as shown in Figures 14 (a) and (b).

Regarding claims 12 and 28, Hirata describes a user modifying the position of the parts in column 24 lines 6-9 ("*...the mouse 103...is operated to pick up a part on the display screen and translate the same.*"), therefore the modification is performed on a user interface.

Regarding claims 13 and 29, Hirata illustrates in Figure 37(c) modifying animations of other processes that are performed within the processes by modifying a position of each of the parts or assembled parts based on a disassembling process algorithm in column 26 lines 30-40 ("*...all parts...are maintained in display...until the part 3 reaches the final position of the disassembly route...*"), where the position of parts are modified based on a disassembly routine or algorithm, in which the positional modification is animated, as shown in Figure 69.

Regarding claims 14 and 30, Hirata describes that the animation may be set to several viewpoints in column 20 lines 16-22 ("*...a plurality of graphics screens, which are involved in a plurality of viewpoints...are displayed on the CRT display...when the cursor of the mouse 103*

shown in FIG. 2 is translated to a desired one of the plurality of graphics screens thus displayed and then the mouse 103 is clicked, the graphics screen of interest is selected...").

Regarding claims 15 and 31, Hirata describes each partial movement animation in each process by determining an interference among said parts during movements thereof for each partial animation in column 26 lines 34-38 ("*...there will appear a graphics image of a product in the middle of disassembly including parts in the middle of disassembly in the state that they interfere with another part.*") and modifying the position, bearing or scale for each of the parts in each animation in column 26 lines 34-40 ("*Then, the parts in the middle of disassembly on the graphics screen are translated, through the mouse operation, in a direction free from an occurrence.*").

Regarding claims 16 and 32, Hirata describes an interference among parts during the movements thereof is determined by calculating the interference among respective polygons circumscribed around each of said parts or parts groups in column 29 lines 32-34 ("*...a triangular polygon interfered with any of triangular polygons constituting another part is detected.*") and in column 26 lines 34-38 ("*...there will appear a graphics image of a product in the middle of disassembly including parts in the middle of disassembly in the state that they interfere with another part.*").

Regarding claim 33, Hirata describes that allocated parts comprise parts or parts groups contained in said assembly structure information, or process parts-groups which are defined by the user in column 21 lines 60-63 ("*...a three-dimensional CAD system, has...configuration data for parts and assembly arrangement information as well including a membership (indicating as to what child part is to be associated with what parent part) of the parts.*").

Regarding claim 34, Hirata illustrates a movement direction for each of the parts in Figures 16 (c) and 18, within nodes described in column 22 lines 10-13 ("...*whenever the process returns from the automatic disassembly route producing routine...a retrieval of the part tree structure...is performed...*"), where the nodes within the tree structure, as shown in Figure 32, are accessed when the disassembly direction 200_1 shown in Figure 5 is chosen.

Regarding claims 35 and 40, Hirata describes a user defines displaying of parts during the animation in column 21 lines 66-67 – column 22 lines 1-5 ("...*in the parts selection routine...parts...are selected...The part tree structure...may be displayed on the CRT display...through a selection...*").

Regarding claims 36 and 41, Hirata illustrates in Figure 28(c) a node comprises a basic process, or root node "Part 1", and optionally an intermediate process, or child node "Part 2", performed in which the child node "Part 2" is highlighted for optional removal from the tree structure. Hirata describes assembled parts consisting of parts that are to be disassembled or assembled in the intermediate process in column 23 lines 3-15 ("*In the part selection routine 100, first...a retrieval of the part tree structure...is performed, so that regarding a subassembly all the parts constituting the subassembly are selected...When the item "PART" is selected in the automatic disassembly route...subassemblies are disassembled...and thereafter the subassembly is disassembled into individual parts.*"), move integrally in the animation of the disassembling or assembling process in column 38 lines 16-21 ("...*the part 2 is rotated by the angle...so that...FIG. 31(b)...In this manner, the translation of the part 1 and the rotation of the part 2 are simultaneously performed on the graphics screen.*"), where it is described that disassembly is chosen of a particular part within the tree structure and then moved in an animation.

Regarding claims 37 and 42, Hirata describes a user interface on a computer for defining the disassembling process definition information in column 27 lines 45-48 ("*When a part to be disassembled is selected, in a manual route producing routine 400, a translation direction of the part to be disassembled and a movement thereof are inputted through a mouse operation...*").

Regarding claim 38, Hirata describes parts, parts groups contained in said assembly structure information in column 3 lines 37-40 ("*...information is representative of a part tree structure including configuration information of a plurality of parts and assembly arrangement information of the plurality of parts...*"), and illustrates process parts-groups in Figure 29.

Regarding claim 39, Hirata describes a user defines a movement direction for each of said nodes in column 14 lines 65-67 – column 15 lines 1-3 ("*...a parts selection routine 100 for selecting parts to be disassembled is executed...a disassembly direction of the selected part is set up...*").

Response to Arguments

Applicant's arguments with respect to claims 1-3, 5-19 and 21-42 have been considered but are moot in view of the new ground(s) of rejection.

The applicant argues that the 35 U.S.C. 112, second paragraph rejection of claims 2-9, 11-16, 18-25 and 27-32 is supported by the applicant's specification on page 7 lines 16-19 and in Figures 4A-4D. However, the referenced portion of the specification and Figures 4A-4D do not provide a clear definition of the phrases "basic process" and "intermediate process" in which one of ordinary skill in the art would have a clear understanding of the claimed the subject matter.

The applicant argues that the reference Hirata used in the 35 U.S.C. 102(b) rejection of claims 1, 2, 10-14, 17, 18 and 26-30 does not teach a step where a user defines disassembling process definition information for disassembling the product into its components parts. However, the examiner maintains the rejection because Hirata describes user defined disassembling process definition information for disassembling the product into its components parts in column 25 lines 59-60 ("*...a disassembly route of the part is produced on a manual basis.*"), in which the user provides information defining the disassembling of a product into several parts, as shown Figure 39.

The applicant also argues that the reference Hirata used in the 35 U.S.C. 102(b) rejection of claims 1, 2, 10-14, 17, 18 and 26-30 does not teach providing the user with full control of creating a disassembly process, where a user may define the direction of an intended movement for a given process animation. However, the examiner maintains the rejection because Hirata describes providing a user with the capability to enable an intended movement for a disassembly process in column 27 lines 45-48 ("*When a part to be disassembled is selected, in a manual route producing routine 400, a translation direction of the part to be disassembled and a movement thereof are inputted through a mouse operation...*"), therefore the user defines the subsequent disassembly animation described in column 27 lines 42-44 ("*FIG. 39 is a...routine for implementing characteristic structures shown in FIG...38(b)...*") and in column 27 lines 30-31 ("*...in FIG. 38(b)...part A is translated to a position...*"), where it is described that the animation shown in Figure 38(b), is produced based on the user defined disassembling process.

The applicant argues that the reference Hirata used in the 35 U.S.C. 102(b) rejection of claims 1, 2, 10-14, 17, 18 and 26-30 would have limited success. However, the examiner

maintains the rejection because Hirata illustrates manual disassembly in step 400_1 of Figure 39, therefore the system of Hirata is very successful because it enables manual interactive disassembly of a plurality of parts, and as also avoids collision between parts during disassembly in step 400_2 of Figure 39.

The applicant argues that the reference Hirata used in the 35 U.S.C. 102(b) rejection of claims 1, 2, 10-14, 17, 18 and 26-30 does not teach or suggest allowing users to create the most appropriate assembling and disassembling process trees and set up animation attributes for each process. However, In response to applicant's argument that the references fail to show certain features of applicant's invention, it is noted that the features upon which applicant relies (i.e., page 16 1st ¶ lines 1-4 "allow users to create the most appropriate assembling and disassembling process trees and set up animation attributes for each process.") are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after

the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Said Broome whose telephone number is (571)272-2931. The examiner can normally be reached on M-F 8:30am-5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ulka Chauhan can be reached on (571)272-7782. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Said Broome/
Art Unit 2628
6/15/07

Ulka Chauhan
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